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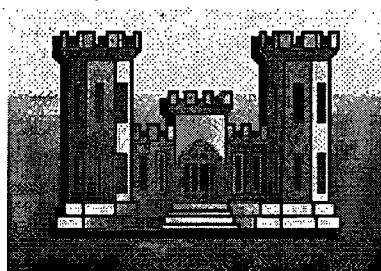
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FINAL

**WORK PLAN FOR INVESTIGATION AND REMOVAL OF
MUNITIONS AND EXPLOSIVES OF CONCERN (MEC) AND
EXPLOSIVES CONTAMINATED SOIL
ELKTON FARMS FIREHOLE (TRIUMPH EXPLOSIVES)
ELKTON, MARYLAND**

**CONTRACT NUMBER: W912DR-05-D-0031
TASK ORDER NO. 0003**



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CHAPTER 1

INTRODUCTION

1. INTRODUCTION

This Work Plan (WP) describes the technical approach for performing the Task Order for Investigation of Munitions and Explosives of Concern, (MEC) and explosives contaminated soil (Munitions Constituents – MC) at Elkton Farms Firehole (Triumph Explosives) site. InfoPro Corporation, UXO/OE Services Division (IPC) are performing this work for The United States Army Corps of Engineers, North Atlantic Division, Baltimore District (CENAB) under Contract Number. W912DR-05-D-0031, Task Order No. 0003. This WP was prepared in accordance with the CENAB Scope of Work (SOW) dated 13 October 2005, which is included as Appendix A of this WP, and *Data Item Description (DID) MR-005-01*. The *Site Safety and Health Plan (SSHP)* and *Emergency Response and Contingency Plan (ERCP)* are included in Appendix D of this document and the *Contractor Quality Control Plan (CQCP)* is included in Chapter 10.

1.1 PROJECT OBJECTIVES

The primary objective of this project is to conduct an investigation to safely and efficiently locate, identify and dispose of MEC and Munitions Debris (MD) as well as disposal of explosive contaminated soil at the Elkton Farms Firehole site (Triumph Explosives).

1.2 SITE BACKGROUND AND PLANS FOR FUTURE USE

1.2.1 The project site is located at 183 Zeitler Road, approximately 2 miles northwest of the town of Elkton in Cecil County, Maryland. During the decade before and during WW II the property had been the site of activity related to the manufacture of fireworks and munitions. During a brief period in the early to mid 1940's (1942/1943 to about 1946) the Elkton Farms site was a contractor operated facility operated by Triumph Explosives, Inc. (TEI) for the manufacture of military ordnance (40mm shells) and other ordnance related materials for the US Navy. From 1943 until it closed in 1946 the site was operated by TEI. An area of approximately 55 acres located in the northern part of

the site is currently the area of concern. This area, reportedly referred to as the "Firehole site" was reportedly used for the disposal and burning of off-specification ordnance products by TEI. The Firehole area contains four (4) suspected burn pits as well as a buffer zone surrounding the pits.

According to reports provided, MEC types that could be found in the area of concern include, but are not limited to: 40mm (BOFORS-Antiaircraft) shells; rifle grenades; float lights; fuzes; aircraft signals; detonators; primer caps; pentolite; incendiary bombs and hand grenades.

1.2.2 The most recent use of the property has been as a working farm. It is currently leased to Spry Brothers Farming for seasonal crops. The property is currently owned by the MARVA Limited partnership and in all likelihood the entire farm (approximately 300-acres) will be developed for residential use in the future, rather than continued use for farming.

1.3 SITE DESCRIPTION

Munitions and Explosives of Concern (MEC) as well as Munitions Constituents (MC), including explosives contaminated soil have previously been identified and found at several locations throughout the Firehole site. The Firehole site was the disposal area for the former Triumph Explosives Incorporated (TEI), a WW II contract ordnance manufacturer. The general areas of the site are shown in the Vicinity Map below at Figure 1-1. Additional site and location maps are located in Appendix B.

1.3.1 SITE HISTORY

1.3.1.1 As mentioned above, the property was the site of ordnance manufacturing activities during and after WW II for the US Navy. The property had previously been used for the production of unspecified fireworks and munitions. Per the Statement of Work (SOW) and according to the US Environmental protection Agency (USEPA) Action Memorandum, there are suspect burn pits at the site where off-specification

ordnance items were burned/detonated. The total quantities of ordnance disposed of in these Firehole disposal pits are unknown. In 1992 the US Army Corps of Engineers (USACE) contracted an investigation of the site operations and ownership history of the TEI site. Prior to this investigation, the Firehole site had reportedly been the subject of a previous cleanup that saw the removal of some contaminated soil. Reportedly, soil was removed from areas where crops would not grow and clean soil was brought in to fill the excavations. The removed soil was said to have contained scraps of brass shell casings and metallic slag.

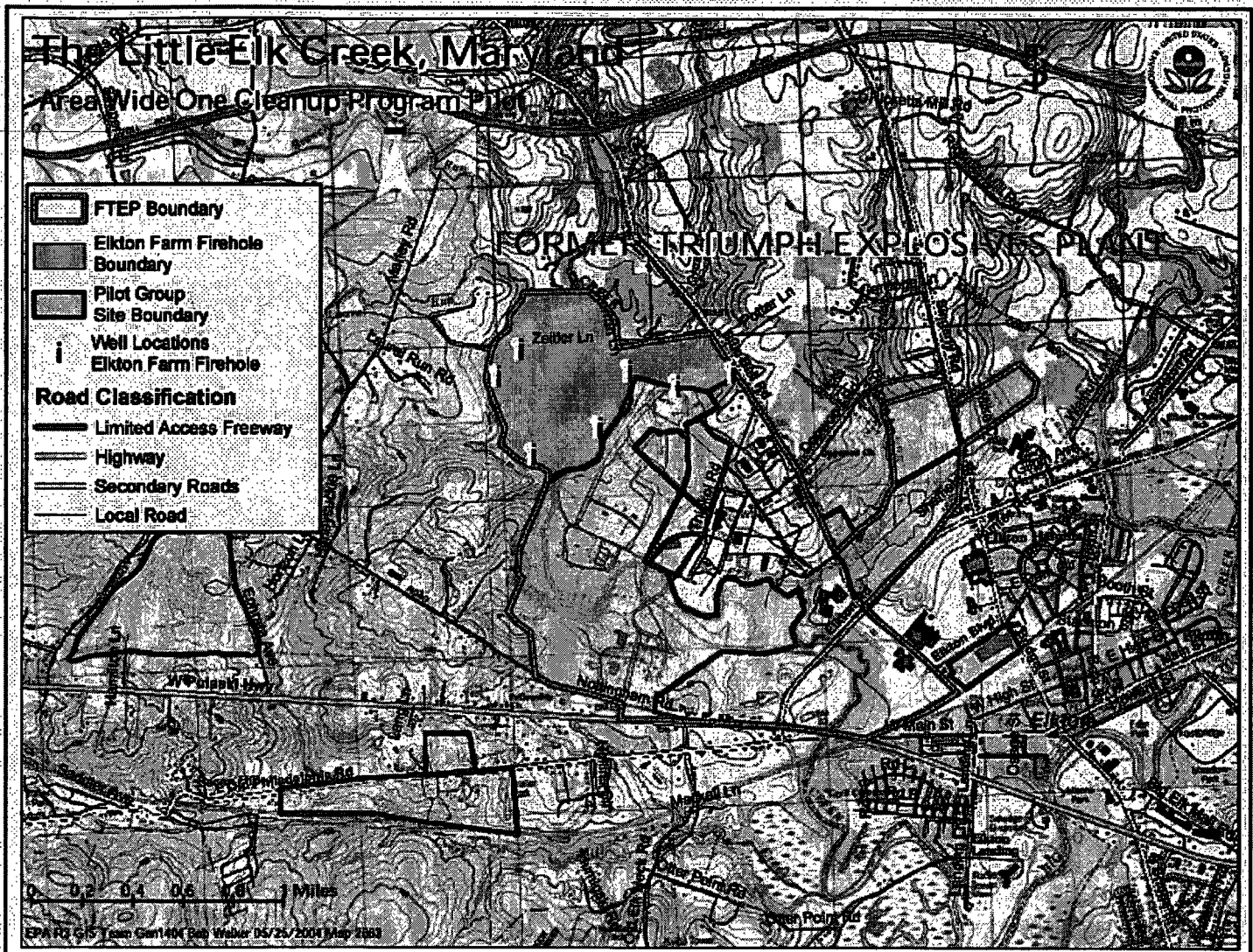
1.3.1.2 Physical Setting – The Firehole property occupies approximately 55 acres on the Elkton Farm site and is located just south of Zeitler Road between Little Elk Creek and Laurel Run.

1.3.2 CLIMATE

The Atlantic coastal climate is moderate throughout the year, and there are four distinct seasons. Summer can bring temperatures above 90 F/32 C and high humidity (55-85%), although most coastal areas do get some cooling breezes. Winters are cold enough for snow to fall at times (23 to 43 F/-5 to 6 C), and it can be as much as 4 degrees F/2 C colder in the north than in the south. Spring and fall are changeable, with temperatures ranging 42-67 F/6-19 C. Air temperatures along the Atlantic coast are about 10 degrees F/5 C warmer in winter and cooler in summer than they are in the inland areas.

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Figure 1-1
Site Vicinity Map



1.3.3 SITE SPECIFIC DYNAMIC EVENTS

The major site-specific dynamic event that could occur is the discovery of live ordnance item(s) (MEC). Upon the discovery of MEC item(s), the Senior UXO Supervisor will coordinate with the on-site CENAB OE Safety Specialist for the proper disposal or storage of the item(s).

1.3.4 POTENTIAL WORKER HAZARDS

Potential safety hazards and methods of avoidance and mitigation are detailed in the Site Safety and Health Plan (SSHP) included in Appendix D. A UXO Site Safety and Health Officer (SSHO) will be present on-site throughout the MEC investigation and related activities to implement the requirements of the SSHP. The UXOSO will be responsible for ensuring worker safety and will also be responsible for documenting and reporting any health and/or safety infractions to the Corporate Safety Officer and, through the SUXOS, to the CENAB OE Safety Specialist. All field employees will be required to have 40-hour Hazardous Waste Operations (HAZWOPER) training, as applicable, a required a current OSHA 8 hour HAZWOPER refresher course and a current OSHA physical.

1.4 WORK PLAN ORGANIZATION

This WP was prepared following the format, content, and preparation instructions specified in the *USACE DID MR-005-01 for a Type II Work Plan* (U.S. Army Engineering and Support Center, Huntsville, Alabama; revised 1 December 2003). Sections referenced in the DID that are not applicable to this SOW have been omitted from the WP, but left in the table of contents for reference and formatting purposes as per DID. Chapters are organized as follows:

- Chapter 1 Introduction
- Chapter 2 Technical Management Plan
- Chapter 3 Explosive Management Plan
- Chapter 4 Explosives Siting Plan
- Chapter 5 Geophysical Prove-Out Plan and Report (Not currently used)
- Chapter 6 Geophysical Investigation Plan (Not currently used)
- Chapter 7 Location Surveys and Mapping Plan
- Chapter 8 Work, Data, and Cost Management Plan
- Chapter 9 Property Management Plan
- Chapter 10 Contractor Quality Control Plan
- Chapter 11 Environmental Protection Plan
- Chapter 12 Investigative Derived Waste Plan
- Chapter 13 Geographical Information Systems Plan
- Chapter 14 Interim Holding Facility Siting Plan for RCWM Projects Site

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- Chapter 15 Physical Security Plan for RCWM Projects Site
 - Chapter 16 References
 - Appendices:
 - Appendix A - Task Order Scope/Statement of Work
 - Appendix B - Site Maps
 - Appendix C - Local Points of Contact
 - Appendix D - Site Safety and Health Plan (SSHP)
 - Appendix E – Environmental Sampling and Analysis Plan
 - Appendix F – Contractor Forms
 - Appendix G – Expl safety Submission(ESS)/MGFD Calculation Sheets
 - Appendix H – Resumes – (As needed)
 - Appendix I – Government (Provided) QA Plan

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CHAPTER 2

TECHNICAL MANAGEMENT PLAN

2. TECHNICAL MANAGEMENT PLAN

The Technical Management Plan was prepared to document the approach and procedures to be used to execute the tasks required under this task order. Any modifications, along with a "Lessons Learned" section shall be incorporated into the Final Report for use in future projects of this nature. This project will be accomplished in two phases. The 1st phase will be Mag & Flag/Mag & Dig operations in the low-density area (buffer zone surrounding the burn pits). The 2nd phase will be excavation of the of the burn pits in the high density area.

2.1 APPLICABLE GUIDANCE AND REGULATIONS

2.1.1 All MEC investigation activities will be performed in accordance with all local, state, and federal regulations and will include all applicable CENAB SOW and DID requirements.

2.1.2 All activities involving work in areas potentially containing MEC hazards shall be conducted in compliance with Military Munitions Mandatory Center of Expertise (MMCX), Department of the Army, and Department of Defense requirements regarding personnel, equipment, and procedures. Permitting, as required, will be coordinated with the Maryland Fire Chief Bomb Squad. The final identification of and disposition of any live MEC item will be coordinated with the on-site CENAB OE Safety Specialist.

2.2 TECHNICAL SCOPE

Once an item is discovered and positively identified as MEC, the SUXOS will notify the CENAB OE Safety Specialist. If an identified MEC item is suspected to be CWM, personnel will withdraw from the area to an upwind location, secure the site and the SUXOS will notify the OE Safety Specialist. If directed by the OE Safety Specialist, UXO personnel may take emergency non-invasive actions such as covering the item with plastic sheeting, etc. until the arrival of the US Army Technical Escort Unit

(USATEU) or other CENAB designated personnel. The site will remain secured until the arrival of USATEU Personnel.

In the event that Hazardous, Toxicological, Radiological Waste (HTRW) is encountered on-site, the work site will be evacuated until the UXO Site Safety and health Officer (UXOSO), with concurrence of the OE Safety Specialist, identifies and implements appropriate protective measures.

2.2.1 UXO personnel will locate and identify surface/subsurface MEC and MC located on the project site utilizing a variety of methods during phase 1 of the project. Mechanical means to be used during phase 2 of the project include using the Timberline Environmental Services (TES) RangeMaster and TAZ heavy equipment systems, and hand-held magnetometers such as Schonstedt, White and/or Fisher detectors. Information concerning the RangeMaster and TAZ heavy equipment systems is provided in subsequent paragraphs.

2.2.2 UXO personnel will establish 200' X 200' grids throughout the investigation area as mandated by the SOW. Delineation of the actual burn pit areas to be investigated will be determined during heavy equipment excavation operations. The TES TAZ® Series II armored excavator (TAZ) will be utilized for this purpose. TAZ will be utilized to excavate pre-established areas for MEC screening. Preliminary MEC screening will be performed by excavation of the boundaries of the suspect burn pits with a standard bucket mounted on TAZ. The bucket head will then be replaced with a Trommex rotary screen head and the excavated soils will be screened. An additional piece of TES heavy equipment to be used on site is the RangeMaster® UXO Excavation System. This system is a modified construction-grade pan scraper with a built-in vibrating screen that will be used to excavate and screen the approximate 30 acres surrounding the burn pits. UXO Technicians will then proof the spoils from either screening process to ensure MEC is removed. The spoils remaining in the equipment screens will then be spread across a designated screening area that has previously been cleared of MEC and scrap metals. Once the spoils from the screening process have been cleared,

QC/QA checks will be performed. When MEC is located and identified, the SUXOS will be notified. MEC items will be destroyed as necessary or removed to a safe location with direction from the SUXOS and OE Safety Specialist. When the soil is determined to be free of MEC and QC/QA checks completed, it will be tested by the USEPA sampling and analysis subcontractor to determine the presence of explosives or other contamination. If the soils are free of contamination, the soil may then be pushed into a pile for later use as backfill material for the disposal pits. If explosive contamination is determined to be present, the soils will be treated if/as necessary and transported to a RCRA authorized landfill facility. Heavy equipment maintenance will be performed in accordance with the IPC equipment maintenance program and as identified in this work plan.

2.2.3 Exclusion zones will be established to prevent non-essential personnel from entering within a minimum separation distance of an intrusive investigation. The minimum separation distance in the low density areas outside of the actual burn pits is 236 feet. The basis for the 236 feet EZ is the M704 Fuze, the Munition with the Greatest Fragmentation Distance (MGFD) expected in the buffer area. The minimum separation distance established for intrusive investigations of the actual burn pits is 1095 feet. The basis for the 1095 feet EZ is the Mk2 40mm HE Projectile, the Munition with the Greatest Fragmentation Distance expected to be encountered in the excavation of the high density area (burn pits). Only essential personnel will be authorized access into the exclusion zone during intrusive operations. The exclusion zone boundaries will be physically marked, where possible. Access and egress routes will be strictly controlled while the exclusion zones are in force.

2.2.4 Establishment of Search Grids/Lanes - Per the guidance in the SOW the MEC investigation will be accomplished utilizing the standard unexploded ordnance (UXO) "Mag and flag" and or "Mag and dig" technique. The approximate 55 acres will be subdivided into 200' grids and/or partials. Each grid will be further subdivided into five-foot wide sweep lanes marked by ropes or measuring tapes. Each lane will then be swept with the instrument initially on its highest setting. Sensitivity settings may be reduced at

the discretion of the OE Safety Specialist. Subsurface anomalies identified during this sweep will be marked (mag and flag) for later excavation and/or be immediately excavated (mag and dig). Grid sheets shall be completed on each grid and will record the appropriate grid numeric identification number corresponding to the numeric identification number of the area. Unless approved by the OE Safety Specialist, no flagging or anomaly marking of any type will be left in place at the end of the daily work in any grid. The UXO Team Leader (Technician III) will plot and record all MEC, which will be referenced along with other significant contacts located within each grid. MEC will be plotted using the 0.0 corner point as the prime reference point. Plots will be recorded on the Grid Location Form using the standard XYZ coordinate system to plot each MEC or significant item identified. A record of the quantity of anomalies investigated and any recovered Munitions Debris will be included on the form. This form will be approved, signed and maintained by the SUXOS for inclusion in the final report. The OE Safety Specialist will provide a Form 948 for grid acceptance. If MEC is located and a Blow-in-place (BIP) operation is conducted, the Senior UXO Supervisor (SUXOS) will indicate on the Daily Activity Report (DAR) that the MEC was detonated at that point and that sampling was conducted. Contact and coordination with the USEPA sampling and analysis contractor shall also be included on the DAR.

2.2.5 Surface Sweep Instrumentation

2.2.5.1 Schonstedt® magnetometers are the primary detectors to be used for sweep operations. These instruments are magnetometer-type metal locators, which only detect ferrous or magnetic material and will be used to ensure the excavation is 100% free of any other ferrous material. The detection depth is limited by the size and orientation of a target and soil characteristics of the work area. These magnetometers do not require calibration. They have a GO/NO GO field operational check. This check is achieved by burying a target of similar size and characteristic as the expected type of MEC. Failure to detect the test target is reason to reject an instrument. Magnetometers will be checked daily before starting the investigation or after battery changes. The UXOQCS and/or the SUXOS will conduct random checks during daily operations.

2.2.5.2 White's ® or similar All-Metals detectors, which are capable of higher discrimination for eliminating such interference as ore bearing magnetic stones or "Hot Rocks" will be available and used if required.

2.2.6 MEC Search and Recording

2.2.6.1 Grids will receive a 100-percent investigation. Grids will be laid out with five-foot search lanes and temporarily marked for magnetometer searches. Per the SOW, the investigation area is defined as the ground surface to the full depth of the plow zone, (or 18 inches minimum below ground level). During this investigation, magnetometers/all metals detectors will be used to aid searchers. Anomalies will normally be investigated to 100% positive identification. Excavations into soil below 18 inches will normally occur only with the approval of the OE Safety Specialist. Once identified, MEC will be recorded and then photographed per the direction of the OE Safety Specialist. IPC will provide personnel to ensure safety/security of the site once MEC has been discovered, until it has been destroyed or properly secured.

2.3 CHANGED SITE CONDITIONS

2.3.1 IPC will keep the OE Safety Specialist updated constantly via daily reporting and communications of on-site conditions. In the event extreme adverse weather conditions exist or a change in site conditions is identified, IPC will notify CENAB immediately.

2.3.2 The potential for changed site conditions is relatively unlikely since the areas to be investigated are fairly straightforward. All changed site conditions shall be immediately brought to the attention of the OE Safety Specialist. While awaiting a response from the OE Safety Specialist and/or CENAB, IPC will cease activities related to the changed conditions and continue to work on other areas within the SOW.

2.4 DISPOSITION OF MEC AND MUNITIONS DEBRIS

2.4.1 Responsibilities of personnel are as listed in paragraph 2.6.3 below.

2.4.2 Overall Safety Precautions

DoD Policy: Provide the maximum possible protection to personnel and property, both inside and outside the installation, from the damaging effects of potential accidents involving DOD ammunition and explosives; and limit the exposure of a minimum number of persons, for a minimum time to the minimum amount of ammunition and explosives consistent with safe and efficient operations.

- All IPC and other subcontractor personnel will adhere to the safety precautions outlined in this work plan. Violation of UXO-related safety precautions will be grounds of dismissal.
- All personnel involved in the disposal/demilitarization of UXO will be aware of and adhere to established safety precautions. All personnel will be alert for circumstances not covered in this work plan and stop operations until those circumstances have been addressed.

2.4.2.1 General Safety Precautions

- Review electromagnetic radiation (EMR) hazards and precautions and electrical grounding procedures.
- Carry blasting caps in approved containers, and keep them out of the direct rays of the sun.
- Do not handle, use, or remain near explosives during the approach or progress of an electrical storm. All persons will retire to a place of safety at a distance specified by the Senior UXO Supervisor based on the circumstances.
- Do not use explosives or accessory equipment that are obviously deteriorated or damaged. They may detonate prematurely or fail completely.
- Do not abandon any explosives. Fatal or serious accidents can result from such careless practice.
- Do not use unexploded dud ordnance items for demolition purposes. They may be in an extremely sensitive and hazardous condition.
- Disposal/Demilitarization operations will not be initiated until at least one-half hour after sunrise and will be concluded by at least one-half hour prior to sunset.
- Restrict and control access to the disposal site to a minimum of authorized personnel necessary for safe conduct of the disposal operations.
- Do not carry fire- or spark-producing devices into a disposal site except as specifically authorized.
- Do not smoke except in areas specifically designated. After smoking, assure that all burning tobacco is extinguished.

- Avoid inhaling, and skin contact with explosives, the smoke, fumes, vapors of explosives, and related hazardous materials.

2.4.2.2 Handling Demolition Materials

- Do not strike, tamper with, or attempt to remove or investigate the contents of a blasting cap (electric or non-electric), detonator, or other explosive initiating device. A detonation may occur.
- Do not pull on the electrical lead wires of electric blasting caps, detonators or other electro-explosive devices. A detonation may occur.
- Do not attempt to remove an unfired or misfired primer or blasting cap from a coupling base. There is a high risk of an explosion.
- Always point the explosive end of blasting caps, detonators, and explosive devices away from the body during handling. This will minimize injury should the item explode.
- Shaped charges - be certain there is no obstruction in the conical cavity or between the charge and the target, as any obstruction will materially reduce the penetration effect.

2.4.2.3 Electromagnetic Radiation (EMR) Hazards

Prior to application of detonation-in-place procedures, a visual EMR check shall be conducted to determine if there are any transmitting antennas of radio, radar, or other electro-magnetic-generating devices operating in the immediate vicinity.

2.4.2.3.1 Radio Frequency (RF) EMR

RF EMR consists of waves of electrical energy. These waves are radiated in a line-of-site from the antennas of electronic devices that transmit radio, radar, television, or other communication, to include cellular telephones, or other communication or navigation radio frequency signals. The factors to be considered when evaluating the degree of hazard that the EMR (RF) energy represents are: (please refer to Table 2-1 below)

- the strength of the field (its power);
- the frequencies transmitted;
- the distance from the transmitter antenna to the ordnance; and
- the amount or type of protection available.

2.4.2.4 Blasting Caps and Safe Distances

Every wire, including a blasting cap lead, by virtue of its length/configuration, is tuned or receptive to a specific frequency. Stretched out the leads act as a dipole antenna, coiled they can act as a closed loop antenna. Therefore, there is no lead wire configuration, which is guaranteed safe. Electric blasting caps should be kept in a sealed metal container until ready for use. Refer to Table 2-1 below for information on mobile transmitter and cellular phone recommended distances.

Table 2-1

(Table 3 from Safety Library Publication No. 20)					
RECOMMENDED DISTANCES OF MOBILE TRANSMITTERS					
INCLUDING AMATEUR AND CITIZENS' BAND					
MINIMUM DISTANCE (Feet)					
			VHF	VHF	UHF
Transmitter	MF	HF	35 to 36 MHz Public Use	144 to 148 MHz Amateur	450 to 470 MHz Public Use
Power	1.6 to 3.4 MHz	28 to 29.7 MHz	42 to 44 MHz Public Use	150.8 to 161.6 MHz	Cellular Automobile Telephones
(Watts)	Industrial	Amateur	50 to 54 MHz Amateur	Public Use	Above 800 MHz
5	30	70	60	20	10
10	40	100	80	30	20
50	90	230	180	70	40

100	120	320	260	100	60
180 (2)	170	430	350	130	80
250	200	500	410	160	90
500 (3)	280	710	580	220	120
600 (4)	300	780	640	240	140
1,000 (5)	400	1,010	820	310	180
10,000 (6)	1,240	3,200	2,600	990	560

CITIZENS BAND, CLASS D TRANSMITTERS, 26.96-27.41 MHz

Recommended Minimum Distance

Type	Hand-Held	Vehicle-Mounted
Double Sideband – 4 Watts maximum transmitter power	5 ft.	65 ft.
Single Sideband – 12 watts peak envelope power	20 ft.	110 ft.

(1) Power delivered to antenna.

(2) Maximum power for two-way mobile units in VHF (150.8 or 161.6 MHz range) and for two-way mobile and fixed station units in UHF (450 to 460 MHz range).

(3) Maximum power for major VHF two-way mobile and fixed station units in 35 to 44 MHz range.

(4) Maximum power for two-way fixed station unit in VHF (150.8 to 161.6 MHz range).

(5) Maximum power for amateur radio mobile units.

(6) Maximum power for some base stations in 42 to 44 MHz band and 1.6 to 1.8 MHz band.

2.4.2.5 Lightning, Electric Power Lines, and Static Electricity

- Lightning is a hazard to both non-electric and electric-blasting caps. A strike or a nearby miss is almost certain to initiate either type of cap and other sensitive explosive elements such as caps in delay detonators. Lightning strikes, even at remote locations, may cause extremely high local earth currents, which may initiate electrical firing circuits. Effects of remote lightning strikes are multiplied by proximity to conducting elements, such as those found in buildings, fences, railroads, bridges, streams, and underground cables or conduit. The only safe procedure is to suspend all blasting activities during electrical storms and when one is impending. All blasting activities will be suspended when lightning-thunder storms are within 10 miles of the project site.
- Electrical firing will not be performed within 155 meters of energized power transmission lines. When it is necessary to conduct disposal operations at distances closer than 155m to electric power lines, non-electric firing systems will be used or the power lines de-energized.
- Many electric blasting caps have been detonated because they grounded static electricity that was in the air. Static electricity is produced by a great variety of causes; among them, dust storms, which have caused a large number of detonations; snow storms, less dangerous, but known to have caused premature explosions; and escaping steam, known to have charged the air and detonated electric caps. Enough static electricity to detonate electric caps also can be generated by such sources as moving belts and revolving automobile (truck) tires. Static electricity is an increased hazard when operating in an extremely cold climate or area of low humidity.

2.4.2.6 Blow-in-Place Operations. IPC will utilize non-electrically initiated means of detonation on all demolition operations. Demolition operations will be coordinated with local law enforcement and fire department as well as with the Triumph Explosives POC.

2.4.2.6.1 Preparation for Firing.

- Use standard blasting caps of at least the equivalent of a commercial No. 8 blasting cap [or commercial equivalent, i.e., exploding bridge wire detonator].
- Keep blasting caps in approved containers, located at least 15.24 meters (50 feet) from other explosives, until they are needed for priming.
- Do not bury blasting caps. Use detonating cord to position blasting caps above the ground. Buried blasting caps are subject to unobserved pressures and movement, which could lead to premature firing or misfires.

2.4.2.7 Non-Electric Priming.

2.4.2.7.1 Procedures:

- Shock tube, non-electric detonators, and a non-electric initiator will be utilized. Shock tube is a small diameter laminated plastic tube coated with a very thin layer of material; only one pound of material per 100,000 feet of tube. When initiated, shock tube reliably transmits a low energy signal at approximately 6,500 feet per second from one point to another. This shock wave phenomenon, which is similar to a dust explosion, will propagate through most sharp bends, knots and kinks in the tube. The detonation is sustained by such a small quantity of reactive material, the outer surface of the tube remains intact during and after functioning. Shock tube cannot be initiated by high frequency radio transmissions, static or stray electrical energy, flame, friction or impact found in normal operations. EZTL Trunkline Delays are non-electric blasting caps using shock tube as a lead. The surface connector and delay cap are attached to the output end of the EZTL and when used are connected to the charge desired to be initiated. The opposite end of the shock tube will be affixed to a non-electric hand starter which uses a #209 shotgun primer to detonate.

2.4.2.8 Firing Demolition Charges

- The signal for detonation will be given by the UXO person in-charge only after all personnel in the area have reached cover or a safe distance from the charge.
- Search the area after each firing for any remaining explosive components and loose explosives. Explosive components found should be individually blown in place without moving. Scattered explosive material should be carefully gathered and destroyed by burning, or by detonation with the next shot. If left in place these items can create an additional explosive hazard. This search includes verifying that a secondary item is not present in the area after conducting "blow-in-place" operations. Always check the "blow-hole" for secondary items and remove all Munitions Debris and fragmentation.

2.4.3 Disposition procedures for recovered MEC items will be determined by the condition of the identified item. Whenever MEC is encountered anywhere on the project site, it will be examined as to identity and condition. If the item is determined to be

acceptable to move it will be taken to a storage magazine to await scheduled disposal operations. If a MEC item is recovered that is deemed unacceptable to move, it will be blown in place. Blow in Place (BIP) operations will normally consist of placing a 19.5 gram perforator (shaped charge) adjacent to the item. Non-Electric initiation means, utilizing shock-tube will be used. This is an almost instantaneous non-electric means of initiation. It allows for control of the operation and does not present a fire hazard as does using detonation cord. BIP operations shall include a search of the area to ensure the disposal operation was successful and complete and that no residue remains on site. This is the responsibility of the Senior UXO Supervisor (SUXOS) and will be audited by the UXO Quality Control Specialist (UXOQCS).

2.5 PUBLIC AFFAIRS AND COMMUNITY RELATIONS

2.5.1 All public affairs and community relation issues will be the responsibility of CENAB. IPC and their subcontractors will not publicly disclose any data generated or reviewed under this contract. IPC will refer any requests for information concerning site conditions via the on-site CENAB USACE personnel to the CENAB PM (or designee) who will coordinate these requests with the USEPA OSC. IPC will support CENAB by participating in public meetings/media events as directed by CENAB.

2.6 PROJECT ORGANIZATION

Mr. Leo Carden, InfoPro Corporation (IPC), UXO Division Program Manager, and Mr. Lester 'Craig' Maurer, CENAB Project Manager (PM), will provide overall management of this Task Order. They will be responsible for IPC's performance from project inception to completion. IPC UXO/OE Services will be responsible for all MEC investigation activities. All site work activities will be coordinated through the following USACE Project Delivery Team (PDT) representatives:

- Mr. Lester Craig Maurer (CENAB Project Manager [PM] & Engineer/Scientist)
- Mr. Maurice Wooden (CENAB Program Manager [PGM])
- Mr. Clint Anuszewski (CENAB Contracting Officers Representative [COR])
- Mr. Jeffery May (CENAB Contract Officer)

-
- Mr. George Follett (CENAB Design Team Leader [DTL] – POC & OE Spec.)
 - Mr. Paul Greene (CENAB Lead OE Safety Specialist)
 - Mr. Charles Fitzsimmons (USEPA) (Customer Regulatory Agency [CRA])
 - Mr. Alex Mark Cox (MDE) (Stakeholder Regulatory Agency [SRA])

Contact information for the above-listed CENAB personnel is included in Appendix C. Mr. R. A. "Skip" Paradine, the IPC PM, will interact directly with the CENAB Lead OE Safety Specialist, Mr. Paul Greene. All site work activities will be coordinated through communications between IPC's Site Superintendent (SUXOS) and the on-site CENAB OE Specialist.

The following subsections contain details pertaining to project schedule, submittal requirements, and personnel. A project organization chart for IPC employees is shown in Appendix D and a detailed description of IPC personnel is provided in section 2.6.3.

2.6.1 PROJECT SCHEDULE

IPC personnel met with CENAB project personnel on 15 September 2005 to conduct a Technical proposal meeting and to conduct research for preparation of a work plan. Additional site preparation activities will include mobilizing to the site following the approval of the Work Plan. The MEC investigation should evolve around a schedule of approximately 80 work days (140 calendar days). The Project Schedule will be adjusted as necessary throughout the project as the duration is only an estimate due to the unknown quantity of MEC that may be encountered.

2.6.2 SUBMITTALS

IPC will submit the following documentation to CENAB as required throughout the project duration:

<u>Submittal</u>	<u>Directive</u>	<u>Frequency</u>
Resumes of Key Personnel	MR-025	Prior to start of field work
Final Project Work Plan	MR-005-01	Prior to project start
<ul style="list-style-type: none">▪ Quality Control Plan (MR-005-11)▪ Accident Prevention Plan (MR-005-06)▪ Munitions Constituents Chemical Data Quality Deliverables (MR-005-10)▪ Environmental Protection Plan (MR-005-12)		
Project Status Report (Daily Activity report-DAR)	MR-085	Daily while in the field.
Weekly Status Report	MR-085	Following week being reported on.
Confirmation Notices including:	MR-055	In weekly status report
<ul style="list-style-type: none">▪ Records of discussions▪ Verbal directions▪ Telephone conversations		
Equipment QC Checks, Inspection Checklists,		Hard copy daily
Meeting Minutes	MR-045	7 days after Meeting
Draft Project Report	MR-030	30 days after field completion
Draft Final Report	MR-030	14 days after comments
Final Report	MR-030	14 days after comments

2.6.3 PERSONNEL

Personnel involved with the MEC investigation operation will include the following employees: IPC Project Manager; SUXOS; UXOSO; UXOQCS; the UXO Team Leaders (Tech III) and the UXO Technicians, as well as IPC Support Personnel. The PM may provide support both on-site and off-site throughout the project duration; all other

employees will provide full-time field support. The project organization chart is shown in Appendix D.

All field personnel will be required to comply with the medical, training, experience, and educational requirements specified in Defense Department Explosive Safety Board (DDESB) Technical Paper (TP) 18; *Chapter 29 Code of Federal Regulations 1910.120*, and IPC's SSHP (Appendix D).

Project Manager

The PM shall have a minimum of five years of project management experience. The PM will have overall responsibility for the management and completion of the project, which includes at a minimum: resource allocation; financial reporting; schedule control; review and approval of deliverables; invoice review and approval; and overall management of the project.

Senior UXO Supervisor

The Senior UXO Supervisor (SUXOS) will direct daily implementation and enforcement of the Task Order requirements as they apply to this investigation and Safety during site activities. The SUXOS will have the overall responsibility for the day-to-day investigation operations at the site as it relates to MEC and will direct all UXO Technicians; subcontractors (if any); and other IPC personnel resources at the site to ensure their safety. The SUXOS will be responsible for all site MEC documentation.

Other responsibilities of the SUXOS include:

- Assist in the development of site-specific Work Plans.
- Ensure site activities are scheduled and executed with adequate personnel and equipment resources to perform the job safely with required quality and in a timely manner
- Ensure that adequate communication between field personnel and emergency response personnel are available

-
- Ensure site personnel are trained in accordance with the SSHP.
 - Ensure all notifications are given prior to beginning work.
 - Ensure all exclusion zones are established and maintained.
 - Ensure all procedures for intrusive investigations are followed.

The SUXOS will have a minimum of 10 years of UXO/EOD experience including MEC clearance operations and supervision of personnel. The SUXOS will have the authority to stop site activities if an immediate dangerous/hazardous situation exists. Any dangerous/hazardous situation will be immediately reviewed with the UXO Site Safety and health officer (SSHO); the UXO Quality Control Specialist (UXOQCS); the CENAB OE Safety Specialist and the IPC Corporate Safety Manager.

UXO Site Safety and Health Officer

The UXO Site Safety and Health Officer (UXOSO) shall be on-site at all times during MEC-related work and has immediate stop work authority. The UXOSO shall have a minimum of 8 years of UXO/EOD experience including MEC response operations and supervising personnel and certified to have documented safety training.

This individual must be able to fully perform all functions associated with UXO Technicians II and III. Other responsibilities of the UXOSO include:

- The ability to implement the approved MEC safety program in compliance with all federal, state, and local regulations.
- Analyze MEC and explosives operational risks, hazards, and safety requirements.
- Enforce personnel limits and safety exclusion zones for MEC clearance operations.
- Unexploded ordnance and explosives transportation, storage, and destruction.

- Conduct safety inspections to ensure compliance with applicable safety regulations and guidance.
- Operate and maintain air-monitoring equipment if required.

UXO Quality Control Specialist

The UXO Quality Control Specialist (UXOQCS) shall be on-site at all times during MEC-related work and has immediate stop work authority. The UXOQCS shall have a minimum of 8 years of UXO/EOD experience including MEC response operations and supervising personnel and certified to have documented QC training.

This individual must be able to fully perform all functions associated with UXO Technicians II and III. Other responsibilities of the UXOQCS include:

- Implement the Quality Control Plan as approved in this Work plan.
- Implement QC requirements including QC inspections of all MEC-related work.
- Direct and approve corrective actions to ensure that MEC-related work complies with contractual requirements.

UXO Technician III Team Leader

The Team Leader has the following responsibilities:

- Supervision of up to 6 team members;
- Accomplishing assigned tasks in a safe manner;
- Providing input to the SUXOS on methods to improve operations;
- Identifying and reporting conditions adverse to quality;
- Providing a quality end-product in accordance with this Work Plan.
- The Team Leader's supervisor is the SUXOS. The Team Leader has Stop-Work Authority.

UXO Technicians (Tech II & Tech I)

The UXO Technicians will conduct the MEC location and identification effort in order to identify all MEC and MPPEH items and will accompany all essential personnel as required to prevent accidental exposure to potential hazardous ordnance items. The UXO Technicians will meet the qualifications of a UXO Technician I at a minimum, and be under the supervision of the SUXOS and/or a UXO Technician III Team Leader.

2.6.4 MOBILIZATION and SITE PREPARATION**Site Accessibility and Traffic Control**

Operational sites are relatively open and accessible to the general public; therefore a contract security guard service has been activated to control access into the project site. In addition, an active exclusion zone must be established and maintained before any intrusive activities occur. If non-essential personnel enter the exclusion zone, all intrusive operations will cease, until the exclusion zone is reestablished.

Both routine and emergency response actions dictate the need for prevention of unauthorized site access and for the protection of vital records and equipment. All equipment will be secured and brought to a designated location each day.

Site Security

Site Security will be maintained on a 24-hour per day, 7-days per week basis by contract security guard personnel to ensure that non-essential personnel do not access the site and therefore the exclusion zone during intrusive operations.

2.6.5 MEC EXCAVATION and DEMILITARIZATION

100% of identified anomalies will be investigated utilizing heavy equipment and suitable hand tools to permit identification and assessment. MEC items will be excavated sufficiently to allow positive identification. Intrusive activities outside of the burn pit

areas may extend to a minimum depth of 18 inches. Intrusive activities may extend beyond 2 feet if necessary for positive identification, with the approval of the OE Safety Specialist. All access/excavation sites will be restored to their original condition. In some cases additional suitable clean material may be required for back-filling.

MPPEH/Munitions Debris will be removed and stockpiled in a locked storage container, pending certification as free of explosives and processed for disposal.

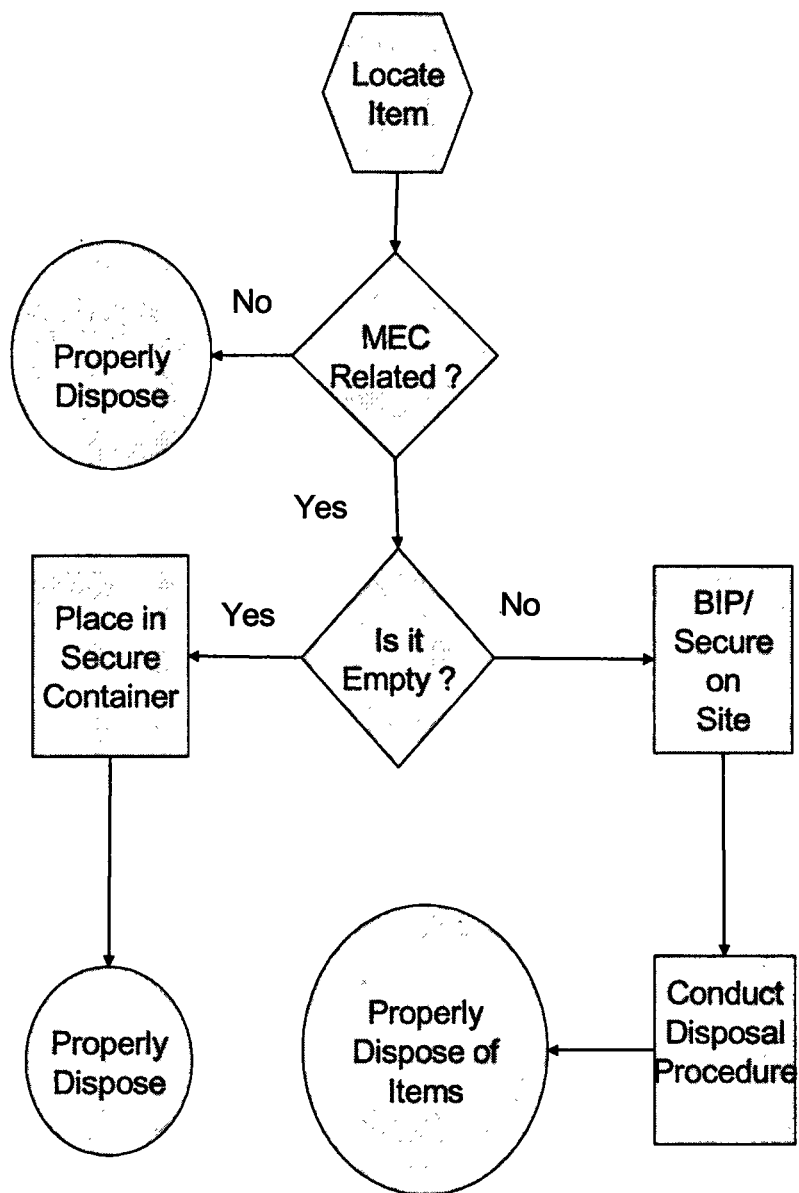
2.6.6 MPPEH/MUNITIONS DEBRIS MANAGEMENT and DISPOSAL

All MPPEH/Munitions Debris will be inspected, certified, and disposed of in accordance with DOD Instruction 4140.62, *Management and Disposition of MPPEH*. This inspection will be certified on DD Form 1348-1 as follows: "This certifies and verifies that the Material Potentially Presenting an Explosive Hazard (MPPEH), Munitions Debris and/or Previously Explosive Contaminated Property listed has been 100 percent properly inspected and to the best of our knowledge and belief, is free of explosive hazards". This certification requires dual signatures. Both the SUXOS and the UXOSO/UXOQCS will sign as certifiers, and the on-site CENAB OE Safety Specialist will sign as verifier. Per the SOW, the inspected Munitions Debris/MPPEH will be containerized, maintained and then safeguarded until proper disposal can be arranged.

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Figure 2-1

MEC Investigation Decision Matrix



CHAPTER 3

EXPLOSIVES MANAGEMENT PLAN

3. EXPLOSIVES MANAGEMENT PLAN

3.1 LICENSE/PERMITS

- Bureau of Alcohol, Tobacco and Firearms Manufacturers of Explosives Permit 1-AL-089-20-6E-00238 Expires May 1, 2006. Permit will be renewed as required.
- Approved Explosive Safety Submission (ESS) is located in Appendix G.

3.2 ACQUISITION PLAN

Basic Load. The basic load for this project is as follows:

20 each Orange Cap Booster, 14 ounce, Class 1.1D, UN0043
50 each Charge, Shaped, 19.5 gram, 4 inch, Class 1.4S, UN0441
500 feet Cord, Detonating, Flexible, 80 gr., Class 1.1D, UN0289
30 each Detonators, Non-Electric, Class 1.4B, UN0360
10 each Detonators, Non-Electric, EZTL surface connector, Class 1.4B, UN0360
2500 feet Shock Tube lead-in-line, Class 1.4S, UN0349

3.2.1 Acquisition Source:

The Boosters, Detonators and Shock Tube lead-in-line materials will be obtained from the Austin Powder Company, Inwood, Maryland. The Shape Charges (Perforators) and Detonating Cord will be obtained from Halliburton Energy Services, Alvarado, Texas.

3.3 INITIAL RECEIPT

3.3.1 Procedures for Receipt from Vendor:

Upon receipt of donor materials, an inventory will be conducted to ascertain:

- correct type;
- correct quantity; and
- serviceable condition.

Discrepancies will be reported to the vendor immediately.

Upon receipt of donor materials, a Daily Magazine Summary form will be completed for each item. One copy will be kept in the day-box with the materials and one copy will be kept in the on-site project files in the explosives accountability file. The form will contain the following information:

Date of Receipt/Use	Supplier (Name, address, Lic #)	Manufacturer (Brand Name)	Description	Identification (Mfg Marks)	Qty.	Qty.	Qty.
					Received	Used	on hand

- A copy of the invoice(s) and a copy of the ATF F 5400.8 for the incoming explosive materials will be kept in the on-site explosives accountability file.

3.4 STORAGE

3.4.1 Establishment of Explosive Storage Facilities. For regular BIP and for scheduled demolition operations the items will be delivered to the job site on an as-needed basis by our vendor, Austin Powder of Inwood, Maryland, and will be used on that particular day. When items are delivered to the job site they will be placed in a Type III Day Box and/or IME-22 Detonator box, pending use. These boxes shall be placed in the bed of a pickup truck configured for transporting donor charges. Continual observation shall be maintained on this vehicle until such time as the donor materials are destroyed. During MEC investigation operations, ordnance items may be recovered that do not necessarily meet the criteria to be BIP'd or destroyed immediately. These items may be unfuzed items or small detonators or similar items. If a recovered MEC item is deemed acceptable to move and this is concurred with by the CENAB OESS, the item(s) may be placed in the on-site Type II ATF magazine until such time as the next scheduled demolition operation takes place. In the unlikely event it becomes necessary; those explosive materials deemed needed for immediate Blow-In-Place (BIP) operations may have to be stored on-site in Type II ATF approved magazines. This will require concurrence with the OESS and may require a modification to the approved ESS.

3.5 TRANSPORTATION PLAN

3.5.1 Procedures for Transporting from the Storage Facility to the Disposal Locations at the Project Site. Transportation of explosives by IPC will occur on-site only. All transportation of explosives via public highway will be by our vendor as noted below.

~~Our established explosives vendor will deliver the explosive materials to the site on an as-needed basis. Austin Powder Company is a licensed explosive dealer/transporter and will adhere to all State and U.S. Department of Transportation policies and procedures relative to transporting donor materials to the project site.~~

3.5.1.1 General

- No one shall smoke, or carry matches or any other flame-producing device, or carry firearms or cartridges while in or near a motor vehicle transporting explosive materials.
- No one shall drive, load, or unload a motor vehicle transporting explosive materials in a careless or reckless manner. All speed limits will be strictly followed.
- No driver shall consume alcohol within 8 hours of operating a vehicle transporting explosive materials.
- A driver who requires the use of a hearing aid shall wear it and have it in operation at all times when operating a vehicle transporting explosive materials.
- Every person who operates a motor vehicle shall possess at all times while operating the vehicle, a valid commercial driver's license.
- No vehicle shall be placed in service until it has been inspected and found to be in a safe operating condition.

3.5.1.2 Transportation Vehicles

- Vehicles used for transporting explosive materials shall be strong enough to carry the load and be in good mechanical condition. The bed of the truck utilized to transport the materials will be covered with a sheet of plywood.
- No mixed loads are allowed (i.e., explosives and fuel). When transporting explosives, only explosives will be in the bed of the vehicle.
- Motor vehicles, when used for transporting any quantity of explosive materials, shall display required placards.
- Each motor vehicle used for transporting explosive materials shall be equipped with fire extinguishers as follows:
 - Trucks of less than 14,000 pounds GVW rating - minimum of two extinguishers with total fire extinguisher rating of at least 4-A: 20-B:C.

- Extinguishers shall be equipped with a device permitting visual determination of charged condition
- Extinguishers shall be located where they are accessible for immediate use
- Extinguishers shall be examined and recharged periodically

3.5.1.2.1 Operation of Transportation Vehicles

- Motor vehicles transporting explosive materials shall be driven by, and be in the charge of a properly licensed driver not less than 21 years of age. The driver shall be physically fit, careful, capable, reliable, and able to read and write the English language. The driver shall not be an unlawful user of, or addicted to, alcohol, narcotics, or dangerous drugs. The driver shall be familiar with applicable local, state, and Federal laws and regulations governing the transportation of explosive materials.
- The operator of the vehicle shall have a Commercial Drivers License (CDL) with a Hazardous Materials Endorsement.
- Except under emergency conditions, no vehicle transporting explosive materials shall be parked before reaching its destination, even though attended, within 300 feet any highway adjacent to or in proximity to any bridge, tunnel, dwelling, building, open fire, or place where people work, congregate, or assemble. Do not park on or within 5 feet of the traveled portion of a public street or highway except for brief periods when necessary for operation and it is impractical to park any other place. When parking on private property, including fueling or eating facilities, the knowledge and consent of the person in charge of the property is required and they must be aware of the nature of the hazardous material on board.
- Every motor vehicle transporting any quantity of 1.1, 1.2, and 1.3 explosive materials shall, at all times, be attended by a driver or other employee of the company. Such attendant shall have been:
 - made aware of the class of explosive material in the motor vehicle and of its inherent dangers;
 - instructed in the measures and procedures to be followed in order to protect the public from such inherent dangers;
 - familiarized with the vehicle he is assigned to attend; and
 - trained, authorized, and enabled to move the vehicle, when required.
- Tires shall be checked for proper inflation and general condition after each two hours or 100 miles of travel, whichever occurs first, and at every rest stop. Flat or overheated tires shall be removed from the vehicle immediately. After removal, the tire shall be placed far enough from the vehicle so that a spontaneous ignition of the tire will not endanger the vehicle or its cargo.
- No spark-producing metal, spark-producing metal tools, oils, matches, firearms, electric storage batteries, flammable substances, acids, oxidizing materials or corrosive compounds shall be carried in the body of any motor vehicle transporting explosive materials.

- Vehicles transporting explosive materials shall avoid congested areas and heavy traffic and shall follow routes when designated by local authorities.
- Delivery shall only be made to authorized persons and into authorized magazines.
- Motor vehicles transporting explosive materials shall come to a full stop before crossing any railroad track or main highway, and shall not proceed until the driver determines that the way is clear. The stop shall occur within 50 feet but not closer than 15 feet from the railroad track(s). The driver must not shift gears while crossing.
- Only authorized persons or passengers are permitted on any motor vehicle transporting explosive materials.
- In the event of an accident involving any motor vehicle transporting Class 1 (explosive) materials, every available means shall be employed to prevent individuals, other than those employed in the protection of persons or property or in the removal of hazards or wreckage, from congregating in the vicinity. Such means shall also be employed to prevent smoking, to keep flame away, and to safeguard against the aggravation of the hazard present, and to warn other users of the highway.
- In the event that any motor vehicle laden with or carrying Class 1.1 explosives is entangled with another or with any other object or structure following an accident, no attempt shall be made to disentangle either vehicle, or the laden vehicle from the object or structure, until the cargo, together with any fragments thereof, is removed to a place at least 61m (200 feet) from the vehicle (and preferably 61m (200 feet) from any habitation).
- Compatibility requirements will be followed.

3.5.1.2.2 Transportation of Detonators in the Same Vehicle with Explosives. In the transportation of explosive materials, it is often desirable to transport detonators in the same vehicle with other explosive materials. This is acceptable with certain detonators as long as they are placed in an IME-22 Container, which IPC will utilize on this project.

- Detonators, if they are classified as 1.4B or 1.4S, may be transported on the same vehicle with other explosives provided the detonators are shipped in accordance with the IME-22 specifications.
- Detonators classified as 1.1B, which contain not more than one gram of explosives (excluding ignition and delay charges) and are electric detonators (electric blasting caps) with leg wires four feet or longer, or are detonators (blasting caps) with empty plastic tubing leads twelve feet or longer, may be transported on the same vehicle with other explosives provided the detonators are shipped in accordance with the IME-22 specifications.

3.6 RECEIPT PROCEDURES

3.6.1 Accounting Procedures for each item of Explosives from Initial Delivery until the item is Expended or Relieved from Accountability.

3.6.1.1 Initial Receipt – see 3.3.1 above. Please note, under normal circumstances the explosives will be brought on-site by an explosives vender and will not stored in an on-site magazine. Until brought on-site by the vendor or picked-up from the vendor, they are under the control of and accounted-for by the vendor.

3.6.1.2 Issuing Procedures

- The explosive items are issued to IPC personnel and the items are deducted from the stock listed on the Daily Magazine Summary form.
- Upon conclusion of the disposal operations, the senior individual involved with the disposal operations (the end user) will certify that all of the materials listed have been expended.

3.6.2 Identify Individuals Authorized to Receive, Issue, Transport, and Use Explosives by Contract Position and those Individuals shall Assume Accountability by Signing the Receipt Document.

The below named personnel (contract positions) are authorized to receive, issue, transport, and use explosives on this project:

- SUXOS
- UXOSO
- UXOQCS
- UXO Technician III

All IPC personnel will either be designated "Responsible Persons" or "Employee Possessors" by the ATF and will have ATF Form 5400.28 Employee Possessor Questionnaire completed and forwarded to the ATF. A copy of the completed ATF Form 5400.28 will be maintained on site.

3.7 INVENTORY

3.7.1 Procedures for Physical Inventory of Explosives in the case of On-site Storage.

- An initial inventory will be conducted to verify the accuracy of the amounts indicated on the Daily Magazine Summary form. The results of the inventory will be annotated on the magazine card and reported to the site office.
- At a minimum, a weekly physical inventory will be conducted with the results listed on the magazine card and reported to the site office.
- A closeout inventory will be conducted at the conclusion of the project to validate the explosive materials used on-site.

3.7.2 Procedures for Reconciling Discrepancies Resulting from Inventories

Inventory discrepancies will be resolved immediately. If it is determined that a theft or loss has occurred, refer to 3.8 below. If an inventory identifies a discrepancy, a different individual will conduct a second inventory to verify the discrepancy. If an inventory identifies a discrepancy, all records will be double-checked to assure that correct numbers have been utilized. If the records double-check fails to correct the discrepancy, all parties involved in the receipt, issue, and use of the materials will be interviewed to determine possible reason(s) for the discrepancy. If the discrepancy still exists, the Contracting Officer will be notified via the CENAB OE Safety Specialist.

3.8 PROCEDURES UPON DISCOVERY OR LOST, STOLEN OR UNAUTHORIZED USED OF EXPLOSIVES.

Theft or loss of explosive materials will be reported as follows:

- contact Contracting Officer via the CENAB OE Safety Specialist;
- notify the Bureau of Alcohol, Tobacco, and Firearms (ATF) at 888-ATF-2662 immediately;
- notify the local law enforcement agency;
- complete ATF Form 5400.5, Report of Theft or Loss - Explosive Materials and send to nearest ATF office within 24 hours. Instructions for completion of the form are on the reverse side.

3.9 PROCEDURES FOR RETURN TO STORAGE OF ANY DAILY ISSUED EXPLOSIVES NOT EXPENDED.

Only those donor materials required for a specific destruction will be drawn from the on-site magazine (if utilized) or transported to the project site by our explosive vendor, thus there will not be any unexpended donor materials to be returned to storage.

3.10 PROCEDURES FOR DISPOSING OF ANY REMAINING EXPLOSIVES AT THE END OF THE SITE ACTIVITIES.

All explosives delivered will be expended on-site. Those explosives not delivered which remain stored with the vender will be returned to the vender for credit.

CHAPTER 4

EXPLOSIVES SITING PLAN

4. EXPLOSIVES SITING PLAN

It is IPC's policy to provide the maximum possible protection to personnel and property, both inside and outside of the project site, from the damaging effects of potential accidents involving ammunition and explosives; and to limit the exposure of a minimum number of persons, for a minimum time, to the minimum amount of ammunition and explosives.

4.1 ORDNANCE AND EXPLOSIVES AREAS.

- When MEC operations are being conducted, only personnel essential for the operation will be allowed in the exclusion zone. The Exclusion Zone (EZ) for unintentional detonations shall be 236 feet in the buffer area and 1095 feet in the burn pit area. If necessary, we will utilize a Modular Open Front Barricade (MOFB) as approved engineering controls.
- Access to the exclusion zone will be controlled during all UXO operations. UXO operations will cease prior to non-essential personnel entering the exclusion zone.
- When a non-essential person requests entrance to the exclusion zone, that individual must receive a safety briefing by either the Senior UXO Supervisor (SUXOS) or the UXO Site Safety and Health Officer (UXOSO) before entry is permitted. The SUXOS/SSHO will have the visitor sign the Visitor Log.
- Essential personnel are considered:
 - ✧ IPC personnel and subcontractors involved in the clearance effort, and the USEPA subcontractor for sampling/monitoring.
 - ✧ USACE UXO qualified Safety Specialists. USEPA, MDE and CENAB PM's (on an infrequent basis to observe operations).

4.1.1 Minimum Separation Distances for Nonessential Personnel.

Minimum Separation Distance (MSD) shall be 236 feet in the buffer area and 1095 feet in the burn pit area, based on the Munitions with the greatest Fragmentation Distance (MGFD). Please see the approved TCRA Explosive Safety Submission (ESS) in Appendix G.

4.1.1.1 Unknown MEC.

If, during the course of operations, a munition with a greater fragmentation distance is encountered, then Q-D arcs will be adjusted and an amendment to the Explosive Safety

Submission (ESS) will be submitted for approval. Pending approval of any amendment to the ESS, calculations and information as listed in DDESB TP 16 will be utilized.

4.1.1.2 Known MEC/Most Probable Munition

According to the Statement of Work (SOW) (see Appendix A) and the ESS, the Munition with the Greatest Fragmentation Distance (MGFD) and the most probable munition that could be encountered in the low density area will be the M704 Fuze. The most probable munition in the high density area (burn pits) is the Mk2 40mm HE Projectile.

4.1.2 Planned or Established Demolition Areas.

There are four (4) suspected Open Burn/Open Demolition (OB/OD) areas (burn pits) on the project site. On-site demolition will be accomplished by consolidated shots during BIP operations.

4.1.2.1 Sited and Shown on Site Map.

No established demolition areas will be designated on this site.

4.1.2.2 Minimum Separation Distance (MSD) Based on Paragraph 4.1.1

All blow-in-place (BIP) operations shall maintain a minimum 200 feet MSD when engineering controls are in place as stated in the approved ESS for this project site; blast and fragmentation effects will be mitigated when necessary using sandbag techniques delineated in HNC-ED-CS-S-98-7 and/or water techniques as delineated in HNC-ED-CS-S-00-3.

4.1.2.2.1 Explained and Q-D Arc Drawn on Map.

See MGFD MSD Map (Appendix B). The most probable munition that could be encountered in the low density area will be the M704 Fuze with an MSD of 236 feet. The most probable munition that could be encountered in the high density area (burn pits) is the Mk2 40mm HE Projectile with an MSD of 1095 feet.

4.1.2.3 General Information (EP 1110-1-17) for Intended Detonations

- Road blocks will be established at all entrances and exits to the detonation site at the specified fragmentation zone distance.

4.2 FOOT PRINT AREAS

4.2.1 Blow-In-Place Minimum Separation Distance is 236 feet in the low density area for the M704 Fuze and 1095 feet in the high density area for the Mk 2 40mm HE projectile. The MSD is reduced to 200 feet with approved engineering controls.

4.2.2 Collection Points Minimum Separation Distance: Not applicable to this project. There will be no designated collection points.

4.2.3 In-Grid Consolidated Shots Minimum Separation Distance: Consolidated shots may occur on this project during BIP disposal operations. Minimum separation distance is as listed in paragraph 4.2.1 above. Consolidated shots will be conducted in accordance with guidance for shots with multiple rounds as listed in DDESP TP 16.

4.3 EXPLOSIVES STORAGE MAGAZINES

IPC will place two (2) ATF Type II magazines on this site. These magazines will be utilized to store recovered MEC items deemed acceptable to move until such time as it can be properly disposed of during scheduled demolition operations.

4.4 SITE MAP

See maps located in Appendix B.

4.5 MINIMUM SEPARATION DISTANCES FOR THE MUNITION WITH THE GREATEST FRAGMENTATION DISTANCE (MGFD)

See maps located in Appendix B.

CHAPTER 5

GEOPHYSICAL PROVE-OUT PLAN AND REPORT

5. GEOPHYSICAL PROVE-OUT PLAN AND REPORT

This Chapter Does not apply to this Work plan.

CHAPTER 6

GEOPHYSICAL INVESTIGATION PLAN

6. GEOPHYSICAL INVESTIGATION PLAN

This Chapter Does not apply to this Work plan.

CHAPTER 7

LOCATION SURVEYS AND MAPPING PLAN

7. LOCATION SURVEYS AND MAPPING PLAN

7.1 GENERAL

Following grass and brush removal, NAEVA Geophysics, Inc. survey crew shall install the 200-foot by 200-foot grid pattern within the designated 55 acre area. Each grid point will be labeled and marked with a wooden lathe or other non-metallic item. The vertical and horizontal coordinates will be accurate to 1.0 foot or better.

7.2 UXO SAFETY PROVISION

During all fieldwork and intrusive activities, a UXO qualified person will accompany the survey crew. The UXO person will conduct visual surveys for surface ordnance prior to the survey crew entering a suspected area, and a magnetometer survey of each intrusive activity to ensure the site is anomaly free prior to the surveying crew setting monuments or driving stakes. If an anomaly is detected at the planned intrusive site, an adjacent anomaly free site will be selected. The UXO person will not be assigned additional survey tasks which will interfere with the ordnance safety aspects of area clearance for driving stakes, iron pins, monumentation or other survey control, which will penetrate the surface in the ordnance contaminated area.

7.3 REFERENCE AND CONTROL POINTS

Horizontal control shall be based on the English system and referenced to the North American Datum of 1983 (NAD83) and the Universal Transverse Mercator (UTM) Grid System. Vertical control, if required, shall also be based on the English system and referenced to the North American Datum of 1988 (NAVD88). If aerial photographs or orthophotography are used to provide the survey, the aerial targets used for control points shall meet the same horizontal and vertical accuracy and requirements detailed above.

7.3.1 Survey Procedures

The permanent control points and the grid points will be established utilizing a GPS system and/or with an electronic total station. The grids will be oriented north-south and east-west, with each grid assigned a letter and number. The lettering of the grid points will increase from south to north and the numbering of the grid points will increase from west to east. The survey crew will use wooden or plastic hubs for the grid points and the grid point designation will be written in indelible ink directly on the stake and on flagging attached to the stake. Recording the horizontal positions at the locations of any MEC items recovered will be accomplished through direct X-Y-Z measurements from nearby grid corners.

7.4 MAPPING

Maps of the grid points will be produced in hard copy (paper) and electronic formats. Maps of the grid systems, in paper format, will be provided to the UXO teams for use during the MEC investigations. The GIS subcontractor, NAEVA Geophysics, uses Arc View software for their GIS.

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CHAPTER 8

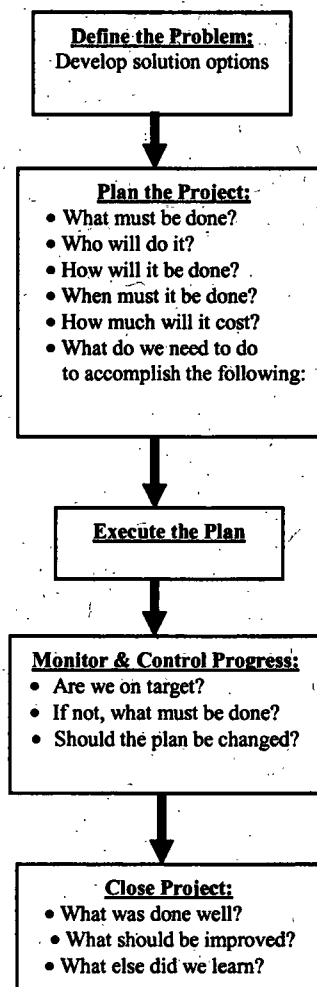
WORK, DATA, AND COST MANAGEMENT PLAN

8. WORK, DATA, AND COST MANAGEMENT PLAN

8.1 METHOD OF MANAGING AND ACCOMPLISHING WORK

During the accomplishment of this work, IPC personnel will work a schedule of four 10-hour days. If there is a need to adjust this working schedule during this MEC investigation project, coordination will be made with the CENAB OE Safety Specialist.

8.1.1 PROJECT MANAGEMENT APPROACH



8.2 PROJECT SCHEDULE – See attached rough schedule at the end of this chapter.

8.3 COST CONTROL AND TRACKING METHODOLOGY

Cost accounting systems fulfill two (2) major purposes by their day-to-day operations: (1) they *allocate* costs for planning and control, and (2) they *apply* costs to units. There are two (2) general types of cost accounting systems, the *job order cost accounting system* (JOCAS) and the *process cost accounting system* (PCAS). IPC'S Deltek® System 1 computer accounting system is inherently designed to perform both functional types of accounting in an integrated and seamless manner. The combination of automation and integration of IPC's accounting system allows for a one-time data entry process thereby providing efficient and cost effective cost accounting management.

For this type of contract, IPC administers and monitors program costs on a job order cost basis since this type of accounting is most appropriate where strong requirements exist for the timely monitoring of incurred costs. IPC's JOCAS fully supports the basic requirements of being able to accumulate direct incurred costs at the lowest programmatic reporting activity level specified in the contract coupled with the ability to allocate indirect costs to these levels. The cost accumulation process under IPC's JOCAS provides for the monitoring and accumulation of direct and indirect costs from the service organization and the conversion of these costs into final cost objectives.

At a minimum, IPC's JOCAS will accurately accumulate the direct costs of regular and overtime labor, materials and equipment, and other direct costs. On a monthly or sub-period basis, the system will allocate and apply indirect cost burdens such as labor fringe and tax burden, overhead, material and equipment handling, and general and administrative expenses.

Additionally, IPC's JOCAS has the capability to accumulate allocated indirect cost burdens utilizing various scenarios (i.e. actual, provisional, and target) simultaneously at all reporting levels while monitoring the variances between each. Actual indirect costs and rates are posted on a monthly, year-to-date basis against target costs and rates for budgetary purposes, and provisional rates for billing purposes.

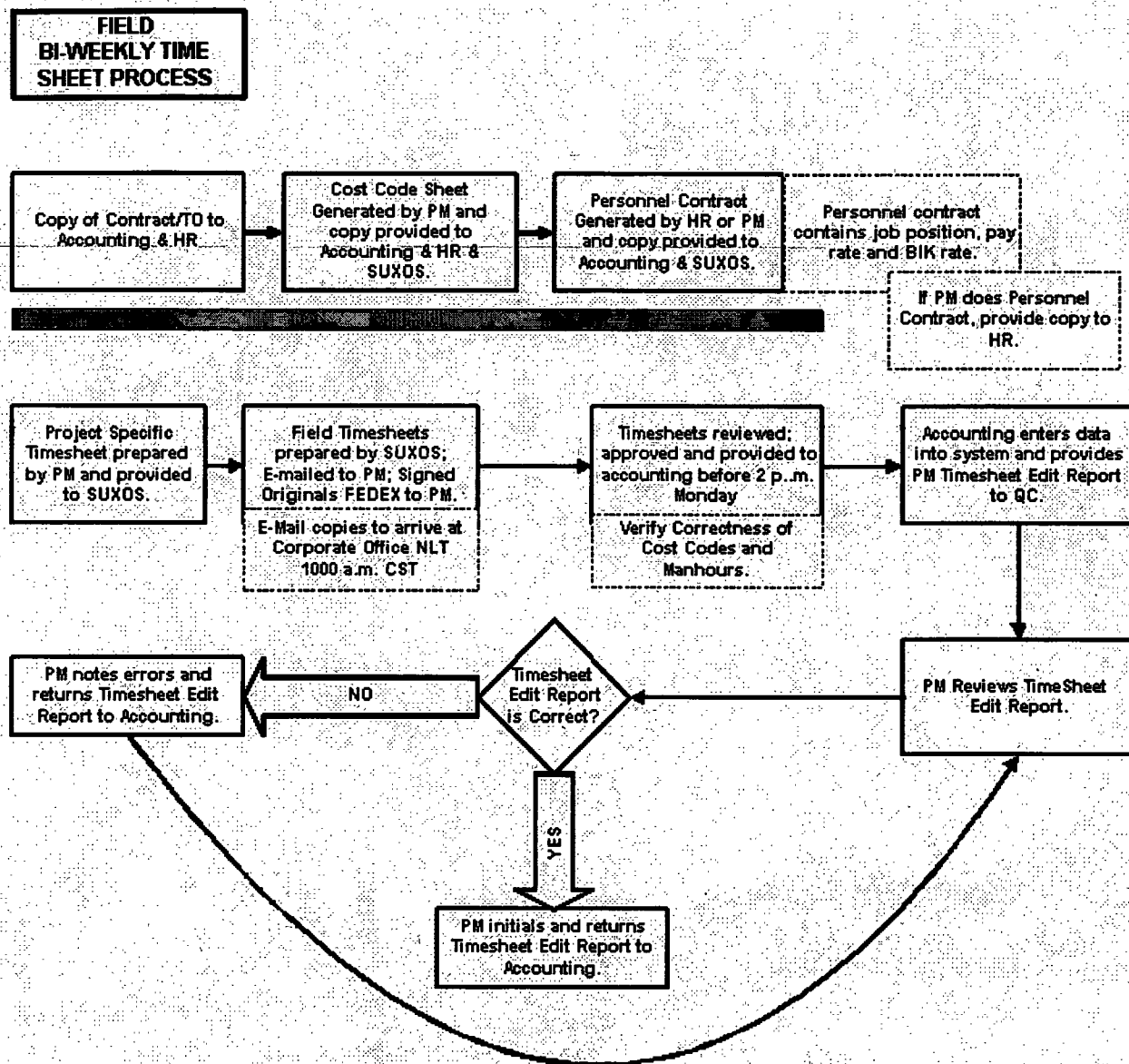
The significant benefits that IPC's computerized job cost accounting system will provide are:

- Every work element will bear its proper share of costs.
- Valuable and timely information is provided to management to aid decisions for planning and control.
- An accurate basis for future pricing decisions is established.

8.4 RECURRING DELIVERABLES

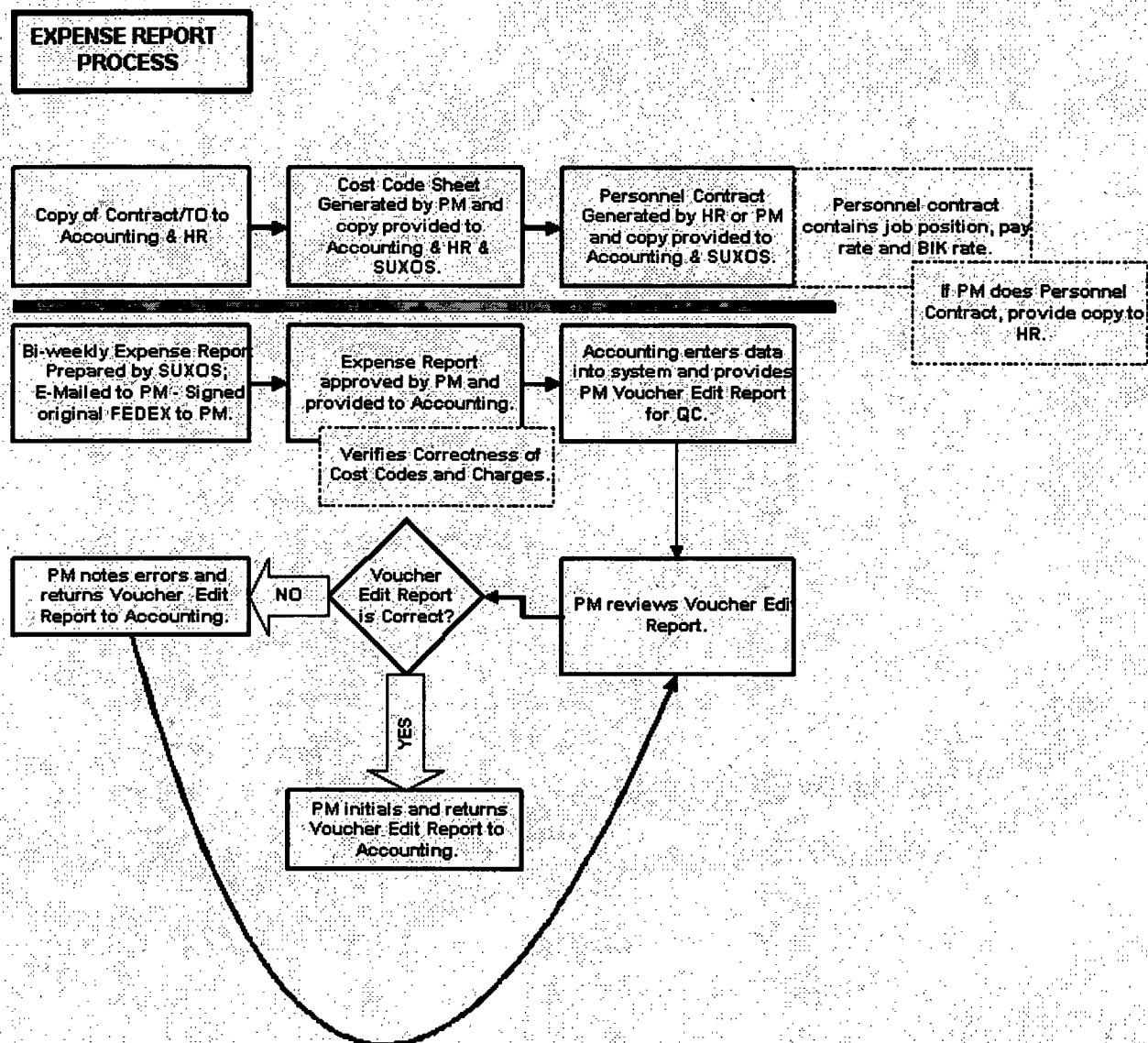
SIGNATURE AUTHORITY AND REVIEW					
SIGNATURES				QC	
Document	Individual	Supervisor	Approval	QC Spec.	Div. Mgr.
Time Sheet	X	SUXOS	PM		X
Expense Report	X	SUXOS Initials	PM		X
Advanced Per Diem & Lodging	X	SUXOS Initials	PM		X
Petty Cash		SUXOS maintains and signs	PM		X
Purchase Orders	SUXOS*	PM	Div. Mgr.		

8.4.1 Time Sheets: The SUXOS signs all time sheets as the Supervisor except his own. The PM will sign as the supervisor on the SUXOS. The time sheets are due at Huntsville NLT COB on Friday of the time sheet's workweek. The time sheets must be Emailed then FedEx'd to Huntsville. The signed, original time sheets will be sent to Huntsville via FEDEX. A copy of the signed time sheet will be provided to the individual and a copy will be placed in the IPC's individual on-site file. The original timesheets must be prepared in the individuals own handwriting. Any errors must be lined through with a single line and corrected, and then the error and correction must be initialed.



8.4.2 Expense Reports: The SUXOS or Team Leader will initial all expense reports, except his own, adjacent to the approved by block. All expense reports will be approved by the PM. This bi-weekly report is due at Huntsville with supporting receipts, NLT noon (CST) of the Monday following the report's 2-week period. The expense reports may be emailed or faxed to Huntsville, but receipts must be faxed for supporting documentation. The signed, original expense report, with supporting documentation, will be FEDEX to Huntsville. A copy of the expense report will be

provided to the individual and a copy will be placed in IPC's individual's on-site file. A copy of the expense report will be included with the individual's check.



8.4.3 Advanced Travel/per diem Requests (ATR): The PM will sign all requests adjacent to the approving authority line. A copy of the Request will be provided to the individual and a copy will be placed in the IPC's individual on-site file. Huntsville will FEDEX the checks/or do an Electronic Funds Transfer (EFT) on Wednesday to ensure

arrival NLT Thursday. A copy of the request will accompany the check if EFT is not done.

8.4.4 Petty Cash: The Petty Cash form and account will be maintained and signed by the SUXOS. It will be tallied and submitted bi-weekly, with appropriate receipts, to arrive at Huntsville NLT COB Monday of the week following the tallied period.

8.4.5 Purchase Orders: If the need arises for a purchase order to be originated on-site, the SUXOS will initiate the form and email it to the Huntsville office with supporting justification. The PM will review and sign the form and approve the form if it does not exceed the PM's \$2,500.00 approval authority. If the monetary limit exceeds the PM's authority, the Division Manager is the approving authority.

8.4.6 Daily Activities Report (DAR). IPC will utilize the DAR to account for all site activities. The completed DAR shall be delivered not later than 08:00 a.m., local time, the next working day. Distribution as follows:

- ✧ CENAB on-site OE Safety Specialist; CENAB Contract Rep (Billy Sanders); CENAB DTL (George Follett); CENAB Lead OESS (Paul Greene) and the Project PM (L. Craig Maurer) via email.

- ✧ IPC Environmental Division head; UXO Program Manager; and the UXO Project Manager.

- ✧ The IPC Project Manager shall approve any change to the distribution.

8.5 INVOICING

An invoice shall be submitted to the Government on a monthly interval. The invoices will be submitted as outlined in the SOW.

8.6 PAYMENT OF PERSONNEL (Policy)

Team members on this project will not be hired for a definite period.

– If an employer discharges an employee, the wages earned and unpaid at the time of discharge are due and payable.

– Every employee who is discharged shall be paid at the home of record and every employee who quits shall be paid at the office or agency of the employer in the county where the employee has been performing labor or via mail as the employee may request.

– If an employee not having a written contract for a definite period quits his or her employment, his or her wages shall become due and payable not later than the next scheduled payday thereafter.

– Every employer shall keep posted conspicuously at the place of work, if practicable, or otherwise where it can be seen as employees come or go to their places of work, or at the office or nearest agency for payment kept by the employee, a notice specifying the regular pay days and the time and place of payment.

Place of payment will be as determined by the individual – either direct deposit (preferred) or sent to an address specified by individual.

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CHAPTER 9

PROPERTY MANAGEMENT PLAN

9. PROPERTY MANAGEMENT PLAN.

All government property will be managed in accordance with FAR Part 45, the IPC Corporate Government Furnished Property (GFP) Plan, and consistent with Baltimore Contract Management Procedures.

The IPC PM has designated the SUXOS as the Site Property Administrator. This individual will be responsible for the day-to-day control of the property acquired by IPC under the contract or furnished by the Government. The IPC PM will be responsible for monitoring compliance with requirements for recording, tracking and reporting all government property under the task order. At the completion of the task order all government property will be disposed of in accordance with instructions received from the CENAB CO/COR. Disposition of property will be documented as part of the closeout process. In general, IPC acquired government property will be kept to a minimum. Subcontractors will not be authorized to acquire or control government property.

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CHAPTER 10

CONTRACTOR QUALITY CONTROL PLAN

10. CONTRACTOR QUALITY CONTROL PLAN

This *Contractor Quality Control Plan (CQCP)* was developed to identify and implement quality requirements to ensure that overall project activities are accomplished using an acceptable level of internal controls and review procedures. These controls will follow a three-phase inspection procedure. The three phases are the preparatory phase, the initial phase and follow-up. The intent of such controls is to eliminate conflicts, errors, and omissions and ensure the technical accuracy of all deliverables. This plan was prepared in accordance with Data Item Description (DID) MR 005-11.

Field work under this task order shall include the following:

- Mobilization of equipment and personnel to the project site.
- Inspection of designated areas for MEC and Munitions Debris.
- Identification of MEC or Munitions Debris.
- Notification through the CENAB OE Safety Specialist, of appropriate active duty EOD/USATEU Teams for any MEC items suspected to be a munition with an unknown filler such as a CWM.
- Security of these suspect CWM items pending arrival of the EOD/USATEU Team.
- Restore excavated areas to their former condition.
- Demobilization of equipment and personnel.

The requirements presented in this *CQCP* are intended as overall QC requirements that are applicable to all administrative, engineering, and technical activities associated with the Task Order for investigation of MEC. The requirements of this plan are also applicable to all IPC-affiliated personnel unless an alternate QC Plan, which is consistent with or exceeds the requirements of this document either in whole or in part, is used.

10.1 PROJECT ORGANIZATION AND RESPONSIBILITIES

Under the direction of CENAB, IPC will provide a staff of experienced administrative and technical professionals to serve as key personnel responsible for implementing QC requirements associated with this project. These personnel will be selected for their management and technical abilities, and will include the following core employees:

- Program Manager
- Project Manager
- SUXOS
- UXOSO
- UXOQCS

All QC personnel have successfully completed the *Army Corps of Engineers Construction Quality Management for Contractors Training Program*. Some individuals may be required to perform multiple functions in order to efficiently maintain progress at the site. A discussion of IPC roles and responsibilities is presented in Chapter 2 of this WP.

10.2 QUALITY REQUIREMENTS

The quality requirements associated with field activities in support of this task order are defined in Table 10-1. These requirements apply to all field activities that affect the quality of work and work products.

Quality Control checks will be conducted as follows:

- **Daily Briefings** - The UXOSO and UXOQCS will ensure that daily safety and operational briefings are conducted.
- **Communications** - Positive communications with the OE Safety Specialist and site personnel will be maintained throughout the workday.
 - At a minimum, communication checks will be conducted each morning prior to starting work. Additional checks will be performed as necessary throughout the workday to monitor progress, safety, and/or QC.

-
- Teams will not start operations until satisfactory checks have been achieved.
 - **Training** - The SUXOS, UXOSO and UXOQCS will ensure that initial site-specific training is performed for all field personnel prior to startup of field activities, and that all safety control measures have been established. Training will be accomplished using only approved training materials. The UXOSO and UXOQCS will ensure that all certifications are filed on-site and are available for inspection.
 - **Documentation** - The UXOSO and UXOQCS will ensure the completion of all documentation listed in Section 10.2.1.
 - **Review** - The SUXOS will be responsible for supervising all site activities including the following:
 - Supervision of IPC and any IPC subcontractor forces.
 - Compliance with IPC's WP, CQCP, and SSHP.
 - Adhering to the contract schedule.
 - Review and submission of all daily and weekly job status reports and documentation.
 - Communicate directly with the IPC PM daily, at a minimum.
 - **Equipment Maintenance** – A heavy equipment maintenance log sheet shall be completed weekly during maintenance for each piece of heavy equipment that may be used on the site.

Table 10-1
Quality Requirements for Investigation of MEC and MPPEH:

Objective	Activity	Activity Quality Requirement	Quality Control Verification
Prepare Site	Mobilization and Site Preparation	Mobilize equipment and personnel, and prepare site as described in the WP.	<ul style="list-style-type: none"> ▪ Daily Site Health and Safety Meeting Report ▪ Field Logbooks
Site-work	Assessment: <ul style="list-style-type: none"> • Mag & Flag Ops • Mag & Dig Ops • Excavation of Burn Pits • Screening Ops 	<p>Site inspection by UXO technicians during all site work.</p> <p>QC checks will be performed to insure that all anomalies have been removed or investigated prior to turning over the site for Government QA.</p> <p>Fail criteria will be any ferrous item exceeding the dimensions equal to the mass of a 20mm practice round. Procedures outlined in the SOW will be followed in the event of grid failure.</p>	<ul style="list-style-type: none"> ▪ QC Daily Report ▪ Daily Site Health and Safety Meeting Report ▪ Daily Equipment Checklist ▪ Weekly Status Report ▪ QA Audit Checklist and Audit Form. ▪ Health and Safety Compliance Inspection ▪ Form 1348 ▪ Field Logbooks
Site-Work	Demobilization	Demobilize equipment and personnel according to schedule.	<ul style="list-style-type: none"> ▪ Daily Site Health and Safety Meeting Report ▪ Weekly Status Report ▪ Health and Safety Compliance Inspection ▪ Field Log Books ▪ Heavy Equipment Maintenance Log

10.3 FIELD DOCUMENTATION

All field activities affecting QC will be performed in accordance with documented procedures, instructions, or drawings identified in the SOW, WP, or applicable DIDs. During all field activities, IPC will use the following reporting forms:

- Daily Site Health and Safety Meeting Report
- Daily Equipment Checklist
- Quality Control Daily Report
- Daily Activity Report (DAR)
- Weekly Projected Activities Summary
- Quality Assurance Audit Checklist and Audit Form
- Health and Safety Compliance Inspection
- Field Logbooks

The IPC Site QC Officer will maintain a field logbook of all inspection and testing activities. This daily logbook will be used in preparing the QC Daily Report. The QC Reports will be submitted daily to the OE Safety Specialist. All other reports and documentation will be submitted to the CENAB project Design Team leader and to the PM. Reports will not be submitted for days on which no work is performed. At a minimum, one report will be submitted for every seven days of no work and on the last day of a period of work stoppage. Daily Reports will be signed and dated by the SUXOS. Weekly Status Reports will be submitted by the PM.

The QC Daily Reports the Daily Activity Reports and the Weekly Projected Activities reports shall include summaries of the following:

- Contractor/subcontractors and responsibilities.
- Equipment used, with any idle or downtime noted.
- Location, personnel, and description of work for each day.
- Safety evaluations including a description of inspections, results, and any corrective actions.

10.4 AUDITS

Field performance will be evaluated to ensure that the quality standards and objectives of the WP are met. The evaluation will be accomplished through audits of the QC Daily Reports and the Daily Activity reports (DAR's). Audits will be conducted and corrective actions will be implemented when non-conformances or deficiencies are identified. Additional audits will be conducted periodically. The audits will be planned and conducted by the Program Manager; Project Manager; UXOSO or UXOQCS. Procedures for auditing activities will be identified prior to implementation of the audits.

The audit process will involve identifying non-conformances or deficiencies, reporting and documenting them, initiating corrective actions through appropriate channels, and following up with a compliance review. Records will be kept of all auditing tasks and findings on the QA Audit Checklist and Audit Notes. In addition, copies of the audit findings will be provided to CENAB within one week of completion of the audit.

The field teams involved with all site work are responsible for reporting any suspected technical non-conformances or deficiencies to the SUXOS. The SUXOS is responsible for evaluation of the situation and taking action, if any is required, after following the notification protocol to the IPC PM and CENAB OE Safety Specialist. The CENAB Project Manager and Design Team Leader will be also notified (as applicable).

CHAPTER 11

ENVIRONMENTAL PROTECTION PLAN

11. ENVIRONMENTAL PROTECTION PLAN

The MEC investigation will take place on the Elkton Farms Firehole site. Minimal intrusive disturbances are anticipated to extend deeper than 18 inches in the buffer area surrounding the burn pits. Burn pit excavation is expected to be to a depth of approximately 8 feet unless suspected MEC is visible after investigation of overburden. All environmentally sensitive areas, if necessary, will be identified prior to any planned activities and preserved to the extent practicable.

11.1 ENDANGERED SPECIES

IPC has received no information related to encountering endangered species for this project site. No anticipated specifically identified species are anticipated to be encountered. In the event that endangered or protected species are identified during site activities, IPC will immediately notify CENAB prior to conducting further work in the area.

11.2 WETLANDS

There are no wetlands anticipated to be adversely impacted during the MEC investigation.

11.3 TREES AND SHRUBS

There are no known vegetation types that will be adversely affected during this investigation of MEC.

11.4 DUST CONTROL

During MEC investigations, it is expected that minimal concentrations of airborne dust may be generated during sifting operations. USEPA subcontractor will be monitoring this as well as conducting air sampling.

11.5 SPILL CONTROL/PREVENTION

IPC will maintain a spill response kit on site containing absorbent pads and booms, as well as a salvage drum. Prior to accepting equipment on-site, the equipment will be visually inspected by IPC (at a minimum) to ensure that equipment is in proper working order and free of leaks. Machinery will be required to pass the inspection prior to use on-site. Equipment that is questionable will be removed until repaired. In the event a leak is detected following the inspection during routine use on-site, the equipment will be shutdown, the resulting liquid removed and/or overpacked (if required), and the equipment will be removed until the necessary repairs are made.

Limited liquid deliveries to the site by IPC or subcontractors are anticipated. Diesel fuel may be delivered, if necessary, to fuel the heavy equipment on site. Other fuels for the site will be contained within vehicle fuel tanks.

11.6 ACCESS ROUTES

All access to and from the work sites will be performed on existing Federal, State, County, or Municipality roads. All posted speed limits and rules and regulations as per local law will be followed.

The route from the work site to the designated hospital is listed in the Site Safety and Health Plan (SSHP) located Appendix D will be thoroughly reviewed during the Daily Tailgate Safety Briefing with handouts containing appropriate maps and directions. These hospital route directions and maps will be maintained in site vehicles.

11.7 SITE CLEANUP

IPC will maintain housekeeping throughout the project. Limited equipment and materials will be stored at the work sites. At a minimum the site will be restored to original condition.

CHAPTER 12

INVESTIGATIVE DERIVED WASTE PLAN

12. INVESTIGATIVE DERIVED WASTE PLAN

12.1 There is the potential for an unknown amount of TNT contaminated soils to be excavated from this project site. At the present time the amount is estimated to be approximately 4,000 cubic feet, as stated in the SOW. This soil will be tested by the ~~USEPA sampling and analysis subcontractor to determine the level of TNT~~ contamination. In the event the soil is contaminated above the permissible level, then the IPC subcontractor, VEETech, P.C. will transport these soils to a RCRA approved landfill off-site. Should the soils not be contaminated above the permissible level and it contains no other contamination above the permissible level, the soils will be used for backfilling the excavated burn pits.

12.2 During the course of testing the soils, should additional contamination be identified that will preclude the use of the soils as suitable backfill material for the excavated burn pits; the soil will be covered and staged on-site in accordance with DID MR-005-13 for further disposition by the USEPA.

12.3 A limited amount of other waste such as disposable gloves, booties, and Tyvek® may be generated during the course of the project. Based on existing knowledge of the site conditions, this waste will have a low hazard potential and this waste will be disposed of as municipal waste. A limited amount of wastewater may be generated during personnel decontamination procedures such as boot wash stations and equipment decontamination. This wastewater will be allowed to percolate to ground.

CHAPTER 13

GEOGRAPHICAL INFORMATION SYSTEMS PLAN

13. GEOGRAPHICAL INFORMATION SYSTEMS PLAN

13.1 GENERAL

NAEVA Geophysics, Inc. will establish a GIS for the Elkton Farms Firehole project, based on maps provided by the US Environmental Protection Agency (USEPA) and the US Army Corps of Engineers (USACE). The GIS will incorporate all new data collected for the current mapping effort. The GIS will be maintained IAW DID MR-07.

This GIS outlines the tools and methodologies used for the efficient and accurate completion of mapping and GIS operations. The plan identifies the various hardware, software, data, methods and quality control required to implement a fully functioning GIS.

13.1.1 GIS Hardware

The GIS hardware for the project will consist of the following:

- GIS workstations
- Large format color inkjet plotter (HP DesignJet 750 C Plus)

All of the GIS data, map files, metadata, and user manuals will be stored on a GIS workstation. Archiving and delivery will be accomplished using the PC CD-ROM format. The GIS workstations will be high-end computers with large monitors designed for the intense computing and display requirements of GIS. The inkjet plotter will be capable of high speed plotting of E size (34 inch x 44 inch) maps.

13.1.2 GIS Software

The following software will be used specifically for the Project GIS:

- ESRI ArcView 9.1 (with appropriate extensions);
- AutoCAD (R14 or higher)

- Geosoft's Oasis Montaj.

Maps generated for the project will be created using either ArcView or Oasis Montaj. Vector GIS data will be created, modified, and analyzed using ArcView and its extensions. AutoCAD will be used in the process of converting historical GIS files, which may currently be in AutoCAD .dwg format, into ArcView compatible formats. All MicroStation .dgn files must be converted to AutoCAD .dwg or .dxf files prior to inclusion in the GIS.

13.1.3 File Formats and Requirements

All GIS data for the project will be submitted in accordance with DID MR-005-07

13.1.4 General Map Requirements

Maps may be created in a variety of sizes (e.g. 8 ½ x 11, 11 x 17, 22 x 34) depending upon the cartographic standards required to present the chosen data. Each sheet/set will have a size/type standard border, title block, complete index sheet layout (if appropriate), scale bar, legend, north arrow, and date. Different sizes and layouts will be used to best illustrate and describe the data and/or analysis being presented.

13.1.5 Quality Control

Procedures for quality control of GIS data will be implemented. The positional accuracy of the data will be tested in order to derive the degree of difference between the objects actual ground location and the location according to the project data set. The data and maps will be tested for completeness, in order to establish that all features and data sets are visible and available. The final maps and data sets will undergo a review process in order to establish that all specifications are met. A specification checklist will be implemented before the project begins, which will contain all known requirements. All changes and stages of work will be tracked on a daily basis and will be maintained in a database. All stages of work will be documented and available for review.

CHAPTER 14

INTERIM HOLDING FACILITY SITING PLAN FOR RCWM PROJECTS

14. INTERIM HOLDING FACILITY SITING PLAN FOR RCWM PROJECTS

Not applicable to this Task Order.

CHAPTER 15

PHYSICAL SECURITY PLAN FOR RCWM PROJECTS SITES

15. PHYSICAL SECURITY PLAN FOR RCWM PROJECTS SITES

Not applicable to this Task Order.

CHAPTER 16

REFERENCES

16. REFERENCES:

Bureau of Alcohol, Tobacco and Firearms, ATF 5400.7, Alcohol, Tobacco and Firearms, Explosives Laws and Regulations.

Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)

DDESB (United States Department of Defense, Explosive safety Board) 2002, *Methods for Calculating Primary fragmentation Characteristics*, Technical paper 16, 1 December 2002

DDESB (United States Department of Defense, Explosive Safety Board) 2003, *Ammunition and Explosive Safety Standards*, DOD 6055.9-STD, 2003 Working Copy.

EPA (U.S. Environmental protection Agency) 1990. *Superfund Removal Procedures, Action Memorandum Guidance*, EPA/540-P-90-004, December.

EPA (U.S. Environmental Protection Agency) 2003b. *Draft Handbook on the Management of Ordnance and Explosives at Closed, Transferring and Transferred Ranges and Other Sites*, Environmental protection Agency, August 2003.

National Contingency Plan, 40 CFR

Occupational Safety and Health Administration (OSHA), General Industry Standards, 29 CFR Part 1910.

USACE (U.S. Army Corps of Engineers), 2000a. *Ordnance and Explosives Response*, EP 1110-1-18, 24 April 2000.

USACE, *Ordnance and Explosives Response*, EM 1110-1-4009, 23 June 2000.

USACE, *Establishing and Maintaining Institutional Controls for Ordnance and Explosives (OE) Projects*, EP 1110-1-24, 15 December 2000.

USACE, *Basic Safety Concepts and Considerations for Ordnance and Explosives Operations*, EM 385-1-95a, 27 August 2004

USACE, *Safety and Health Requirements Manual*, EM 385-1-1, 3 November 2003

U.S. Navy, *EOD Disposal Procedures*, TM 60A 1-1-31

U.S. Fish and Wildlife Service *Montezuma National Wildlife Refuge*, 1990, 1991

U.S. Fish and Wildlife Service *Wetlands and Deepwater Habitats Map*, March, 2000

Munitions Response (MR) Services Contract Data Item Descriptions (DIDs):**Data Item Descriptions:**

<u>Current Number</u>	<u>Date</u>	<u>Title</u>
<u>MR-005-01</u>	20031201	Type II Work Plan
<u>MR-005-02</u>	20031201	Technical Management Plan
<u>MR-005-03</u>	20031201	Explosives Management Plan
<u>MR-005-04</u>	20031201	Explosives Siting Plan
<u>MR-005-05</u>	20031201	Geophysical Investigation Plan
<u>MR-005-05A</u>	20031201	Geophysical Prove-Out (GPO) Plan and Report
<u>MR-005-06</u>	20031201	Accident Prevention Plan
<u>MR-005-07</u>	20031201	Geospatial Information and Electronic Submittals
<u>MR-005-08</u>	20031201	Work, Data, and Cost Management Plan
<u>MR-005-09</u>	20031201	Property Management Plan
<u>MR-005-10</u>	20031201	Munitions Constituents Chemical Data Quality
<u>MR-005-11</u>	20031201	Quality Control Plan
<u>MR-005-12</u>	20031201	Environmental Protection Plan
<u>MR-005-13</u>	20031201	Investigative Derived Waste Plan
<u>MR-015</u>	20031201	Accident / Incident Reports
<u>MR-025</u>	20031201	Personnel Resume
<u>MR-030</u>	20031201	Site Specific Final Report
<u>MR-045</u>	20031201	Report / Minutes, Record of Meeting
<u>MR-055</u>	20031201	Telephone Conversations / Correspondence Records
<u>MR-060</u>	20031201	Conventional Explosives Safety Submission (ESS)
<u>MR-080</u>	20031201	Monthly Status Report
<u>MR-085</u>	20031201	Project Status Report